

REMARKS

By this amendment, claims 7, 14, and 15 are revised to place this application in condition for allowance.

Initially, the Office Action incorrectly identified only 7 claims outstanding in this application. However, a preliminary amendment was filed with the application that added claims 8-15 in order to remove the multiple dependencies from the claims. Moreover, the claims worksheet of March 11, 2005 shows that 15 claims are listed. It is also noted the claim index of November 29, 2006 lists only seven claims. In order to ensure that the preliminary amendment is made of record, a copy of it is submitted herewith with its dated postcard receipt. Entry of this paper is requested. With its entry, claims 1-15 are before the Examiner for consideration on their merits.

First, Applicants acknowledge the indication that JP 2000-128656 has been cited via a PTO-892.

Second and in response to the rejection of claim 7, this claim has been revised to remove the objectionable language. With this revision, claim 7 is fully definite under 35 U.S.C. § 112, second paragraph, and the rejection should be withdrawn.

Third, Applicants submit that the use of m^2/cm^3 is intended in the application and that it does not raise any questions from an understanding of the invention standpoint. First, the use of the unit in question is derived from a gas adsorption process (BET process) to indicate that the total surface area per apparent unit volume is consistent with the measurement method. For clarification in this regard, attached herewith is

Japanese Patent Publication No. 3535282 (published as JP 9-87704). Paragraph 25 of this publication says:

In such a porous sintered metallic plate, a three-dimensional net-shape skeleton or framework comprises a metallic powder sintered structure, so that the skeleton or framework itself is porous. Accordingly, the specific surface area takes very high number, for example, the BET specific surface area falls within the range of 300 to 1500 cm^2/cm^3 . In addition, the diameter of pores in a foam-filled body is very small such that the pore diameter with less than 100 μm can be obtained easily: to be more concrete, it is possible to manufacture the product with the average pore diameter of 60-600 μm along with the pore porosity of 90-98 volume %.

As can be seen from this translation, the BET specific surface area is expressed by using the unit cm^2/cm^3 . While this unit differs from that used in the instant application, i.e., cm^2 vs. m^2 , the units are still essentially the same. The use of an analogous unit in the published application submitted herewith means that Applicants' use of the unit in question is proper when considering specific surface area. Accordingly, there is no need to revise claims 2 or 3 or specification in this regard, and the objection to these claims should be withdrawn.

Turning now to the prior art rejection, claims 1, 3, 5, and 6 are allowed, and claims 2, 4, and 7 are rejected under 35 U.S.C. § 102(b) based on JP 2000-128,656 to Tanaka. Taking into account the addition of new claims 8-15, it is submitted that claims 1, 3, 5, 6, 9, 11, 13, and 15 are allowed, and claim 2 is grouped with 8, 10, 12, and 14 under 35 U.S.C. § 102(b).

The rejections are addressed under the headings of the rejected claims as well as headings for the claims submitted as part of Applicants' Preliminary Amendment.

CLAIM 2

In the rejection, the Examiner contends that Tanaka teaches the claim limitations and therefore anticipates claim 2.

To review, the features of the porous sintered compact of titanium oxide of claim 2 are as follows:

- 1) a porosity of 20 to 65%,
- 2) a specific surface area of 0.1 to 5.0 m²/cm³, and
- 3) a volume ratio of pores with 0.3 to 100 μm diameter to be 10% or higher to the total pore volume.

Turning to Tanaka, the Abstract thereof teaches the following:

- 1) a fine porosity of greater or equal to 50%;
- 2) fine pore diameter distribution having a D10/D90 ratio of less than or equal to 3 wherein D10 and D90 are fine pore diameters corresponding to an accumulated 10% diameter and an accumulated 90% diameter, respectively from the large diameter side of the accumulated pore distribution; and
- 3) a BET specific surface area of 0.1 – 80 m²/g.

It is submitted that Tanaka does not teach the claimed porous sintered compact and the rejection under 35 U.S.C. § 102(b) must be withdrawn. Tanaka relates to a ceramic filter or catalysis carrier. For this filter, when the fine pore diameter distribution range becomes too large, a sieving/filtering capability decreases. This

means that it is necessary for the fine pore diameter distribution range of the porous sintered body to be small. In order to maintain the fine pore diameter distribution range to be small, Tanaka says that the distribution has a D10/D90 ratio of less than or equal to three. D10 is the fine diameter corresponding to an accumulated 10% diameter and an accumulated 90% diameter respectively from the large diameter side of the accumulated fine pore distribution. If the ratio of D10/D90 exceeds 3, the fine pore diameter distribution range becomes large and the filter capability is compromised.

Turning back to the invention, claim 2, among other things, requires that a certain volume ratio of pores of a particular size must be set to 10% or higher of the total pore volume. The particular size range is from 0.3 to 100 μm . In this regard, the Examiner's attention is directed to page 14 of the specification, where the importance of this limitation is explained. This part of the specification teaches that having a certain amount of pores of a size between 0.3 and 100 μm avoids a remarkable decrease in generation efficiency. Pore sizes of less than 0.3 μm or greater than 100 μm do not hardly affect generation efficiency. However, the volume ratio of pores falling within these two limits, i.e., 3 μm to 100 μm , does affect generation efficiency. Therefore, it is discovered that a volume ratio of below 10 of pores of size with 3 to 100 μm diameter results in a remarkable decrease in generation efficiency. Therefore, claim 2 requires that the volume ratio of pores with 3 to 100 μm diameter is 10% or higher of total pore volume.

It is clear that Tanaka does not speak to the criticality of the volume ratio of pores of a particular size. Therefore, the issue presented here is whether the disclosure

of Tanaka relating to the ratio of D10/D90 can somehow be interpreted such that the porous sintered ceramic of Tanaka is the same as that claimed.

Applicants contend that the porous sintered ceramic of claim 2 is not the same as that taught by Tanaka and this reference cannot establish a *prima facie* case of anticipation. Comparing the features of the invention with respect to the volume ratio of 10% having a specific size range is totally unrelated to the aim of Tanaka as having a fine pore size distribution range to be small. Therefore, it can only be concluded that Tanaka does not expressly teach the limitation in question.

Since Tanaka does not expressly teach the limitation in question, the anticipation rejection can only stand on an inherency basis. It is noted that the rejection does not identify any basis in the rejection to support the contention that the missing limitations are somehow necessarily found in Tanaka. Given the fact that Tanaka is not even concerned with a sintered body for production of titanium using electrolysis, how can it be asserted that the claimed volume ratio of a particular size of pores is present in the Tanaka material. The Examiner just has no basis to make this assertion and a rejection based on inherency cannot stand.

Lacking a basis to reject claim 2 under 35 U.S.C. § 102(b), the Examiner can only rely on 35 U.S.C. § 103(a) to further reject the claim. However, there is no basis to do so. Tanaka does not even recognize control of the volume ratio of certain size range pores to be able to say that the limitation in question could be derived from Tanaka. Any contention of obviousness would only be the hindsight reconstruction of the prior art in light of Applicants' disclosure, and such a stance would be reversed on appeal.

In light of the above, claim 2 is neither anticipated nor rendered obvious over Tanaka and the rejection must be withdrawn in this regard.

CLAIM 4

Addressing the rejection of claim 4, the Examiner contends that JP 7-233,469 to Mitsui et al. (Mitsui) anticipate this claim. While Mitsui may teach a particular manner of producing a porous sintered compact by hot pressing a powder of a particular size and under certain temperature and pressure conditions, this does not end the inquiry of patentability. Claim 4 is dependent on claim 2, and therefore, it incorporates the limitations regarding the porous sintered compact thereof.

The Examiner is required to address each and every limitation in a claim from a patentable standpoint. While it is true that in certain instances, the Examiner can ignore an intended use, e.g., when examining an apparatus claim, this is not the case here. Claim 2 quite clearly defines a method of making a particular porous sintered compact having the specific limitations regarding porosity, specific area, and volume ratio of particularly sized pores. It is submitted that the Examiner is required to address the limitations of the thus-produced product of claim 2 and to determine whether the prior art teaches not only the process but the produced product.

Quite clearly, there is no mention of the limitations regarding pore volume in Mitsui. For that matter, Mitsui is silent on porosity and specific surface area. Therefore, Mitsui cannot be said to anticipate the method of claim 2 since the product produced by said method is not disclosed.

While the Examiner may assert that the product is an inherent feature of Mitsui, there must be a basis for this contention. It is submitted that there is no evidence that would support such a contention. Since the Examiner must first establish the basis for any rejection, this has not been done and the rejection of claim 4 fails.

Further, when considering the fact that claim 1 has been considered allowable, and that claim contains the limitations of claim 1 therein, claim 4 is patentably distinguishable from Mitsui for this reason alone.

CLAIMS 9, 11, 13, and 15

As explained above, claims 9, 11, 13, and 15 all depend from claim 3. Since claim 3 has been deemed to contain allowable subject matter, claims 9, 11, 13, and 15 are also in condition for allowance.

CLAIM 8

Claim 8 parallels claim 4 but is dependent on rejected claim 2. Assuming that claim 8 would have been rejected over Mitsui, it is submitted that claim 8 is patentably distinguishable over Mitsui for the same reasons outlined above for claim 4. First, Mitsui does not teach the limitations of the compact of claim 2 as is included in claim 8 and failing to do this precludes a rejection based on Mitsui alone.

Second, since claim 2 has been demonstrated to be patentable over Tanaka, the Examiner cannot contend that even if one were motivated to use the process of Mitsui to make the product of Tanaka, that such would render claim 2 obvious. The product

of Tanaka, even if made according to Mitsui, still does not teach the sintered compact limitations of claim 2 and these limitations included in claim 8 make claim 8 patentable.

CLAIM 10

Claim 10 corresponds to allowed claim 5 but is dependent on claim 2. It is first submitted that claim 10 is patentable by reason of its correspondence with allowed claim 5. Secondly, claim 10 is patentable by reason of its incorporation of the subject matter of claim 2, which has been shown above to be patentably distinguishable over both Mitsui and Tanaka.

CLAIM 12

Claim 12 corresponds to allowed claim 6 but is dependent on claim 2. It is first submitted that claim 12 is patentable by reason of its correspondence with allowed claim 6. Secondly, claim 12 is patentable by reason of its incorporation of the subject matter of claim 2, which has been shown above to be patentably distinguishable over both Mitsui and Tanaka.

CLAIM 14

Claim 14 corresponds to claim 7, which has only been rejected under 35 U.S.C. § 112, second paragraph. Since the revision to claim 7 has removed the 35 U.S.C. § 112, second paragraph, rejection, and the same revision is made to claim 14, claim 14 is allowable for the same reason that claim 7 is allowable. Secondly, claim 14 is

patentable by reason of its incorporation of the subject matter of claim 2, which has been shown above to be patentably distinguishable over both Mitsui and Tanaka.

SUMMARY

To summarize, claims 1, 3, 5, and 6 have been allowed. Claim 2 is patentable over Tanaka since this reference does not establish a *prima facie* case of anticipation or obviousness. Claim 4 is patentable over Mitsui since this reference does not teach the features of the compact included as part of claim 4, and that even if Mitsui were combined with Tanaka, the limitations of claim 2 are still lacking. Claims 9, 11, 13, and 15 are allowed as a result of their dependency on allowed claims. Claim 8 is allowable for the same reasons as claim 4. Claims 10, 12, and 14 are allowable since they parallel allowed claims, or because they incorporate the subject matter of claim 2, which is deemed to be patentably distinguishable over Tanaka.

Accordingly, the Examiner is respectfully requested to examine this application, enter the Preliminary Amendment, and pass claims 1-15 onto issuance.

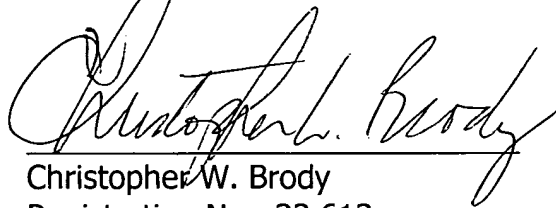
If the Examiner believes that an interview would be helpful in expediting the allowance of this application, the Examiner is requested to telephone the undersigned at 202-835-1753.

The above constitutes a complete response to all issues raised in the Office Action dated November 29, 2006.

Again, reconsideration and allowance of this application is respectfully requested.

Applicants respectfully submit that there is no fee required for this submission, however, please charge any fee deficiency or credit any overpayment to Deposit Account No. 50-1088.

Respectfully submitted,
CLARK & BRODY

A handwritten signature in black ink, appearing to read "Christopher W. Brody", is written over a horizontal line.

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